

## CLAIMS:

1. A colour tuneable lighting element comprising an assembly of dielectric barrier discharge lamps, each of them filled with a noble gas or a noble gas mixture, wherein a Xe excimer discharge generates invisible UV radiation, which is converted into visible light by one or several phosphors being coated onto the inner surface of the bulb and wherein the visible light of several dielectric barrier discharge lamps is mixed by optical means and is emitted homogenously.
2. A colour tuneable lighting element as claimed in claim 1 comprising an assembly of several electric barrier discharge lamps emitting red, green or blue light, wherein said lamps are equipped with one or several phosphors selected from the following groups:
  - 2.1 red:  $(Y,Gd)BO_3:Eu$ ,  $Y_2O_3:Eu$ ,  $Y(V_{1-x-y}P_xNb_y)O_4:Eu$ ,  
 $GdMgB_5O_{10}:Ce,Mn$ ,  $Mg_4GeO_{5.5}F:Mn$
  - 2.2 green:  $BaMgAl_{10}O_{17}:Eu,Mn$ ,  $BaAl_{12}O_{19}:Mn,Zn_2SiO_4:Mn$ ,  
 $LaPO_4:Ce,Tb$ ,  $(Y_{1-x}Gd_x)BO_3:Tb$ ,  $InBO_3:Tb$
  - 2.3 blue:  $Sr_2P_2O_7:Eu$ ,  $BaMgAl_{10}O_{17}:Eu$ ,  
 $(Y_{1-x}Gd_x)BO_3:Ce$ ,  $(Y_{1-x}Gd_x)(V_{1-y}P_y)O_4$
3. A colour tuneable lighting element as claimed in claim 1 comprising an assembly of several dielectric barrier discharge lamps emitting blue or yellow light, wherein said lamps are equipped with one or several phosphors selected from the following groups:
  - 3.1 blue:  $BaMgAl_{10}O_{17}:Eu$ ,  $(Y_{1-x}Gd_x)BO_3:Ce$ ,  $(Y_{1-x}Gd_x)(V_{1-y}P_y)O_4$
  - 3.2 yellow:  $(Y_{1-x}Gd_x)_3Al_5O_{12}:Ce$ ,  $(Y_{1-x}Gd_x)_3(Al_{1-y}Ga_y)_5O_{12}:Ce$
4. A colour tuneable lighting element as claimed in claim 1 comprising an

assembly of several dielectric barrier discharge lamps emitting blue-green or orange light, wherein said lamps are equipped with one or several phosphors selected from the following groups:

4.1 blue-green:  $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu,Mn}$

4.2 orange:  $(\text{Sc}_{1-x}\text{Lu}_x)\text{BO}_3:\text{Eu}$ ,  $(\text{In}_{1-x}\text{Gd}_x)\text{BO}_3:\text{Eu}$

5

5. A colour tuneable lighting element as claimed in claims 1 to 4, wherein the brightness of each of the lamps may be varied independently by a suitable electronic driver unit.

10 6. A colour tuneable lighting element as claimed in claims 1 to 5, wherein the brightness of the lamps is varied by suitable optical filter means in such a way, that the resulting colour of the emitted light is white.

7. Use of an assembly of dielectric barrier discharge lamps as claimed in  
15 any of claims 1 to 6 for the generation of saturated colourful light.